

Chapter 3. Community Risk Assessment

3.1 COMMUNITY RISK ASSESSMENT

One of the core elements when creating the SURWPP is developing an understanding of the risk of potential losses during a wildfire. The Healthy Forests Restoration Act, the National Fire Plan, and the National Association of State Foresters all provide guidance on conducting a hazard and risk assessment for wildfire.

The Color Country Fuels Committee Risk Assessment Teams approached the Wildfire Risk Assessment with a comprehensive review of potential risk from the CARS list throughout the Southwest Utah region. These risk assessments have been reviewed and are presented in this section. Attention has been focused on the most current and up to date information and data for this report. Efforts of fire managers, fire employees, and trained subdivision member volunteers, along with the Color Country Fuels Committee, resulted in a standard methodology for wildfire risk assessment used for this report.

3.2 RISK ASSESSMENT OBJECTIVES

- Identify each of the Communities At Risk to wildfire within the Southwest Utah Wildland-Urban Interface.
- Develop and conduct a wildfire risk assessment of all Wildland-Urban Interface lands within Southwest Utah.
- Identify and prioritize hazardous fuels landscape treatment projects for all land in the Southwest Utah Region.

3.3 RISK ASSESSMENT METHODOLOGY

The SURWPP wildfire risk assessment is an analysis of the potential loss to life, property, and natural resources within Southwest Utah. The analysis takes into consideration a combination of factors defined below:

- Risk: The potential and frequency for wildfire ignitions (based on past occurrences).
- Hazard: The conditions that may contribute to wildfire (fuels, slope, aspect, vegetation, elevation and weather). The Risk Assessment Map takes these criteria into consideration.
- Values: Residential Property values and other infrastructure that may suffer losses in the advent of a wildfire. The Risk Assessment Valuation Tables are provided in Section 3.4.
- Protection Capacity: The ability to mitigate losses, prepare for, respond to and suppress wildland and structural fires. A complete Fire Department

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Capabilities profile has been conducted in Southwest Utah and is presented in Appendix B.

This risk assessment is based on an extensive literary review of many different methods developed over the years to evaluate wildfire and other natural hazards. The assessment is intended as a tool to illustrate the relative level of risk to life, property and other natural hazards within any area in the country. Emergency management and fire prevention projects are implemented through the SURWPP. The maps and priorities developed through the assessment will change, but they will always point to areas identified as having the highest relative ranking for risk and hazard.

The assessment considers several categories in determining the relative severity of fire risk. When considering how to prioritize treatment projects, other considerations include identifying where there are planned fuels reduction projects on federal, state, or county land. Categories in determining relative severity risk assessments include the following:

- Hazard - Fuels, Slope, Aspect, and Fire History
- Risk - Ignition Density
- Values - Residential (derived from 2006 county property tax assessment data provided by County Assessors in each of the five counties)
- Protection Capability - Geographic coverage of the fire department, facility information, fire equipment, manpower, training, certification(s), etc. (derived from Fire Department Capabilities Survey)

3.4 RISK ASSESSMENT LIMITATIONS

The risk assessment was based on the best available data combined with the Core Team's professional knowledge of field conditions in the project area. Also at the scale of the project, the available data does not provide resolutions necessary for detailed analysis. Some of the limitations include the following:

- Weather conditions, wind speed, and directions that were not considered in this risk assessment.
- Vegetation mapping layers had limitations. Available vegetation data depicting the distribution of various vegetation types were at scales of 1:100,000 or smaller. While this was adequate for characterizing vegetation over large areas, such as a county, the data is much less accurate when viewed for smaller focus areas. In addition, dead and downed fuels are not factored into the landscape maps.

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- While residential and infrastructure Community Values at Risk (CVAR) are included in the Risk Assessment, this assessment does not measure risk to watersheds, recreation areas, or other CVARs. These values should be taken into account when agency's are developing specific fuels reductions projects.

3.5 RISK ASSESSMENT RESIDENTIAL VALUES BY COUNTY

The risk assessment was based upon the June, 2006 County Property Tax data provided by each County Assessor's office. The values shown are based upon utilizing the *average market value* for residential structures in each WUI area. Residential structures were mapped by analyzing aerial photographs which were layered and utilized in digitizing those structures as a separate layer in the regional GIS. The GIS then quantified the number of units in each WUI area.

Table 3.1 - Beaver County Residential Structures and Values at Risk

WUI Area			Fire Risk								Residential Risk		
			Extreme		High		Medium		Low				
Name	Class	Total	Acres	Percent	Acres	Percent	Acres	Percent	Acres	Percent	# of units	Avg. Market Value	Estimated Total Value
Minersville	1	27,923	335	1.20%	15,282	54.73%	10,877	38.95%	1,429	5.12%	2	\$69,053	\$138,106
Adamsville/ Eagle Estates	2	27,941	399	1.43%	19,319	69.14%	6,856	24.54%	1,367	4.89%	12	\$89,567	\$1,074,804
Greenville/ North Creek	2	43,866	170	0.39%	23,422	53.39%	17,270	39.37%	3,004	6.85%	247	\$90,723	\$22,408,581
Baker Canyon/ Little Meadow	2	16,086	357	2.22%	11,789	73.29%	3,819	23.74%	121	0.75%	120	\$108,003	\$12,960,405
Elk Meadow/ Puffer Lake	2	14,358	41	0.29%	6,066	42.25%	8,003	55.74%	248	1.73%	141	\$71,318	\$9,913,202
High/Low	2	28,123	815	2.90%	14,441	51.35%	12,518	44.51%	349	1.24%	80	\$50,822	\$4,065,760
		158,297	2,117	1.30%	90,319	57.10%	59,343	37.50%	6,518	4.10%	602	\$83,988	\$50,560,858

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Table 3.2 - Garfield County Residential Structures and Values at Risk

WUI Area			Fire Risk								Residential Risk		
			Extreme		High		Medium		Low				
Name	Class	Total	Acres	Percent	Acres	Percent	Acres	Percent	Acres	Percent	# of units	Avg. Market Value	Estimated Total Value
Antimony	2	33,283	157	0.47%	19,808	59.51%	10,750	32.30%	2,568	7.72%	3	\$58,756	\$176,268
Blue Springs	2	12,652	479	3.79%	4,076	32.22%	6,599	52.16%	1,498	11.84%	224	\$51,161	\$11,460,064
Canonville/H enrieville/Bry ce	1	30,191	205	0.68%	17,122	56.71%	11,769	38.98%	1,095	3.63%	26	\$40,014	\$1,040,364
Panguitch	1	28,334	65	0.23%	9,667	34.12%	14,883	52.53%	3,719	13.13%	154	\$81,879	\$12,609,366
Hatch	1	21,083	601	2.85%	11,372	53.94%	8,202	38.90%	908	4.31%	12	\$86,783	\$1,041,396
Red Canyon	2	28,234	484	1.71%	15,937	56.45%	11,082	39.25%	731	2.59%	31	\$80,362	\$2,491,222
Mammoth Creek	2	16,319	742	4.55%	8,332	51.06%	6,097	37.36%	1,148	7.03%	46	\$100,175	\$4,608,050
Blue Springs	2	12,652	479	3.79%	4,076	32.22%	6,599	52.16%	1,498	11.84%	224	\$79,465	\$17,800,160
Boulder/Boul der Moutain/ Salt Gulch	2	120,530	2,020	1.68%	47,496	39.41%	60,850	50.49%	10,164	8.43%	4	\$68,973	\$275,892
		303,278	5,232	2.10%	137,886	45.50%	136,831	45.10%	23,329	7.70%	724	\$71,136	\$51,502,782

Table 3.3 - Iron County Residential Structures and Values at Risk

WUI Area			Fire Risk								Residential Risk		
			Extreme		High		Medium		Low				
Name	Class	Total	Acres	Percent	Acres	Percent	Acres	Percent	Acres	Percent	# of units	Avg. Market Value	Estimated Total Value
Kannaravile/ Chekshani/ Bumblebee Ridge	2	27,933	2,840	10.17%	18,299	65.51%	6,341	22.70%	453	1.62%	22	\$138,099	\$3,038,178
Quichapa	2	25,300	158	0.62%	14,125	55.83%	8,267	32.68%	2,750	10.87%	36	\$138,099	\$4,971,564
Cedar Valley Estates/ Iron Springs	2	51,550	3	0.01%	21,169	41.06%	27,146	52.66%	3,232	6.27%	148	\$138,099	\$20,438,652
Cedar City/ Cedar Highlands	1	54,934	1,585	2.89%	22,511	40.98%	19,413	35.34%	11,425	20.80%	529	\$138,099	\$73,054,371
Brian Head	2	15,499	1,014	6.54%	7,790	50.26%	6,598	42.57%	97	0.63%	36	\$83,050	\$2,989,800
Cedar V/Cedar B/ Ireland M/ Meadow L/ Rainbow M	2	28,045	64	0.23%	2,733	9.75%	22,602	80.59%	2,646	9.43%	54	\$83,050	\$4,484,700
Parowan/ Paragonah/ Summit/ Braffits Canyon/ Red Canyon	1	118,713	1,878	1.58%	61,603	51.89%	39,683	33.43%	15,549	13.10%	378	\$89,457	\$33,815,056
		321,974	7,542	2.30%	148,230	46.00%	130,050	40.40%	36,152	11.20%	1,203	\$118,696	\$142,792,321

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Table 3.4 - Kane County Residential Structures and Values at Risk

WUI Area			Fire Risk								Residential Risk		
			Extreme		High		Medium		Low				
Name	Class	Total	Acres	Percent	Acres	Percent	Acres	Percent	Acres	Percent	# of units	Avg. Market Value	Estimated Total Value
Johnson Canyon	2	15,343	55	0.36%	9,016	58.76%	6,162	40.16%	110	0.72%	56	\$85,051	\$4,762,856
Kanabl	1	30,131	498	1.65%	16,809	55.79%	11,544	38.31%	1,280	4.25%	25	\$85,051	\$2,126,275
Spencer B/ Spencer Cliffs/ Stout Canyon	2	33,387	3,644	10.91%	26,176	78.40%	3,513	10.52%	54	0.16%	37	\$85,051	\$3,146,887
Zion View	2	16,422	808	4.92%	9,502	57.86%	5,967	36.34%	145	0.88%	124	\$125,857	\$15,606,268
Duck Creek Area	2	16,133	295	1.83%	3,185	19.74%	10,912	67.64%	1,741	10.79%	19	\$96,987	\$1,842,753
Sylvan Canyon	2	25,994	2,165	8.33%	20,411	78.52%	3,338	12.84%	80	0.31%	10	\$96,987	\$969,870
		137,410	7,465	5.40%	85,099	61.90%	41,436	30.20%	3,410	2.50%	271	\$95,831	\$28,454,909

Table 3.5 - Washington County Residential Structures and Values at Risk

WUI Area			Fire Risk								Residential Risk		
			Extreme		High		Medium		Low				
Name	Class	Total	Acres	Percent	Acres	Percent	Acres	Percent	Acres	Percent	# of units	Avg. Market Value	Estimated Total Value
Blue Springs/ Kolob Terrace	2	22,052	411	1.86%	14,661	66.48%	6,125	27.78%	855	3.88%	151	\$94,892	\$14,328,692
Rockville/Zion	1	18,280	14	0.08%	8,991	49.18%	8,611	47.11%	664	3.63%	35	\$156,250	\$5,468,750
Black Ridge Ranches	2	11,098	955	8.61%	6,852	61.74%	3,208	28.91%	83	0.75%	66	\$222,756	\$14,701,896
Pintura	2	25,198	3,242	12.87%	17,038	67.62%	4,861	19.29%	57	0.23%	61	\$170,969	\$10,429,109
New Harmony	1	21,978	2,138	9.73%	12,280	55.87%	7,154	32.55%	406	1.85%	54	\$222,755	\$12,028,770
Pinto	2	36,582	80	0.22%	25,103	68.62%	11,261	30.78%	138	0.38%	34	\$94,892	\$3,226,328
Enterprise	1	32,053	213	0.66%	20,410	63.68%	8,181	25.52%	3,249	10.14%	65	\$94,892	\$6,167,980
Mountain Meadow	2	22,209	1,857	8.36%	14,516	65.36%	5,835	26.27%	1	0.00%	31	\$129,428	\$4,012,268
Brookside/ Pine Valley	2	50,436	2,762	5.48%	34,948	69.29%	11,751	23.30%	975	1.93%	365	\$204,323	\$74,577,895
Dammeron Valley/ Gunlock	2	59,606	2,015	3.38%	29,405	49.33%	27,948	46.89%	238	0.40%	363	216,951	\$78,753,502
St. George/ Winchester Hills	1	143,810	1,772	1.23%	40,672	28.28%	98,314	68.36%	3,052	2.12%	160	\$201,296	\$32,207,360
Shivwits/ Santa Clara	1	39,683	20	0.05%	8,370	21.09%	30,338	76.45%	955	2.41%	24	\$100,000	\$2,400,000
Washington/ Hurricane	1	80,031	45	0.06%	13,939	17.42%	61,931	77.38%	4,116	5.14%	34	\$94,892	\$3,226,328
		563,016	15,524	2.80%	247,185	43.90%	223,649	39.70%	14,789	2.60%	1,443	\$181,239	\$261,528,878

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3.6 RISK ASSESSMENT INFRASTRUCTURE VALUES BY COUNTY

The Five County Association of Government's Natural Hazards Mitigation Plan (NHMP) was formally approved by FEMA on February 22, 2005.

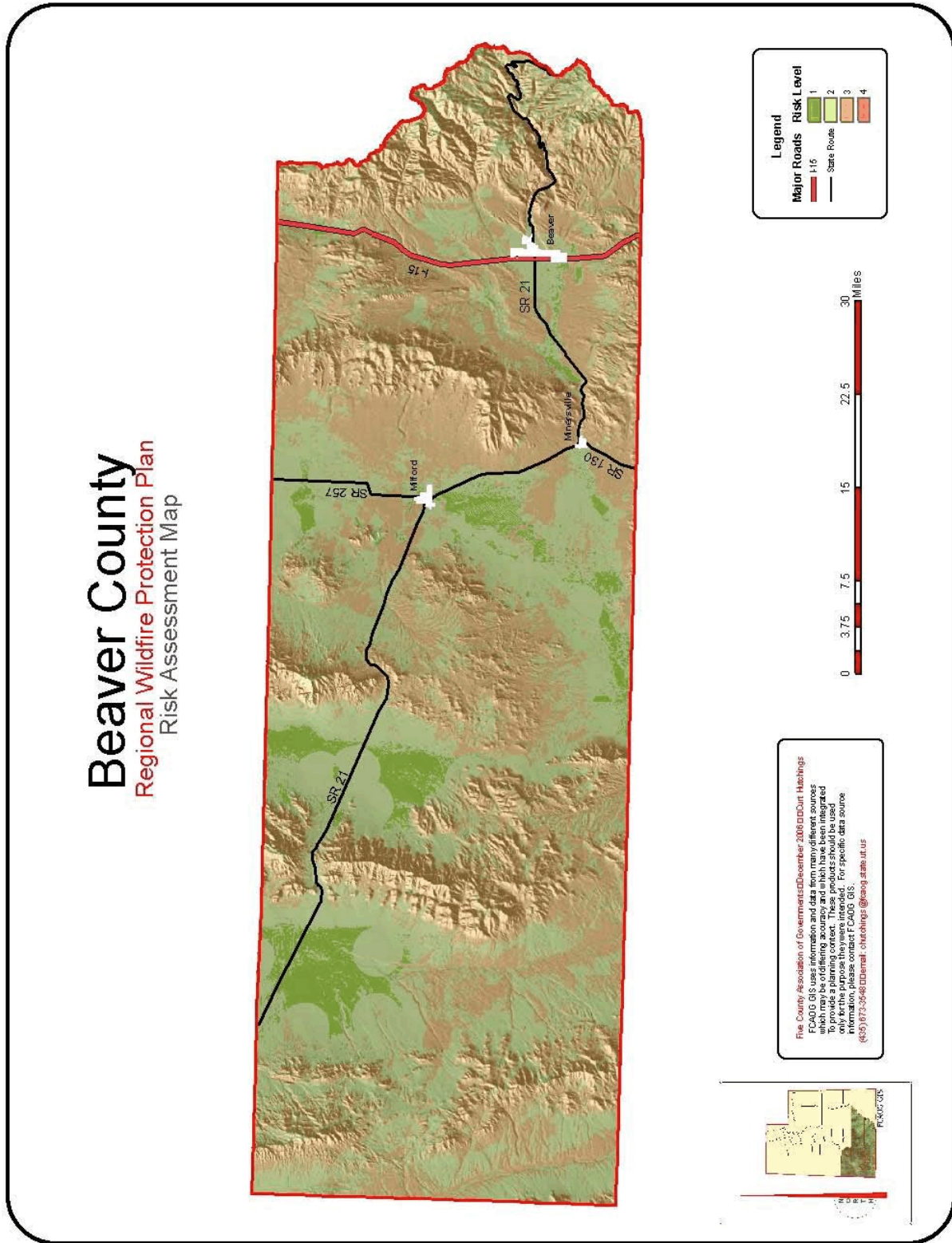
The NHMP identified over 122 miles of railroad, 423 miles of major roadways and 626 miles of utility powerlines in the five county region that are at risk from wildfire. Table 3.6 shows the miles for each of these categories, by county.

TABLE 3.6 - Infrastructure at Risk from Wildfire By Type			
(miles rounded)			
Location	Miles of Major Roadways	Miles of Railroad Track	Miles of Utility Powerlines
Beaver County	60	5	87
Garfield County	104	0	154
Iron County	110	117	180
Kane County	59	0	50
Washington County	80	0	155
Pauite Indian Lands	10	0	0
Region Totals	423	122	626

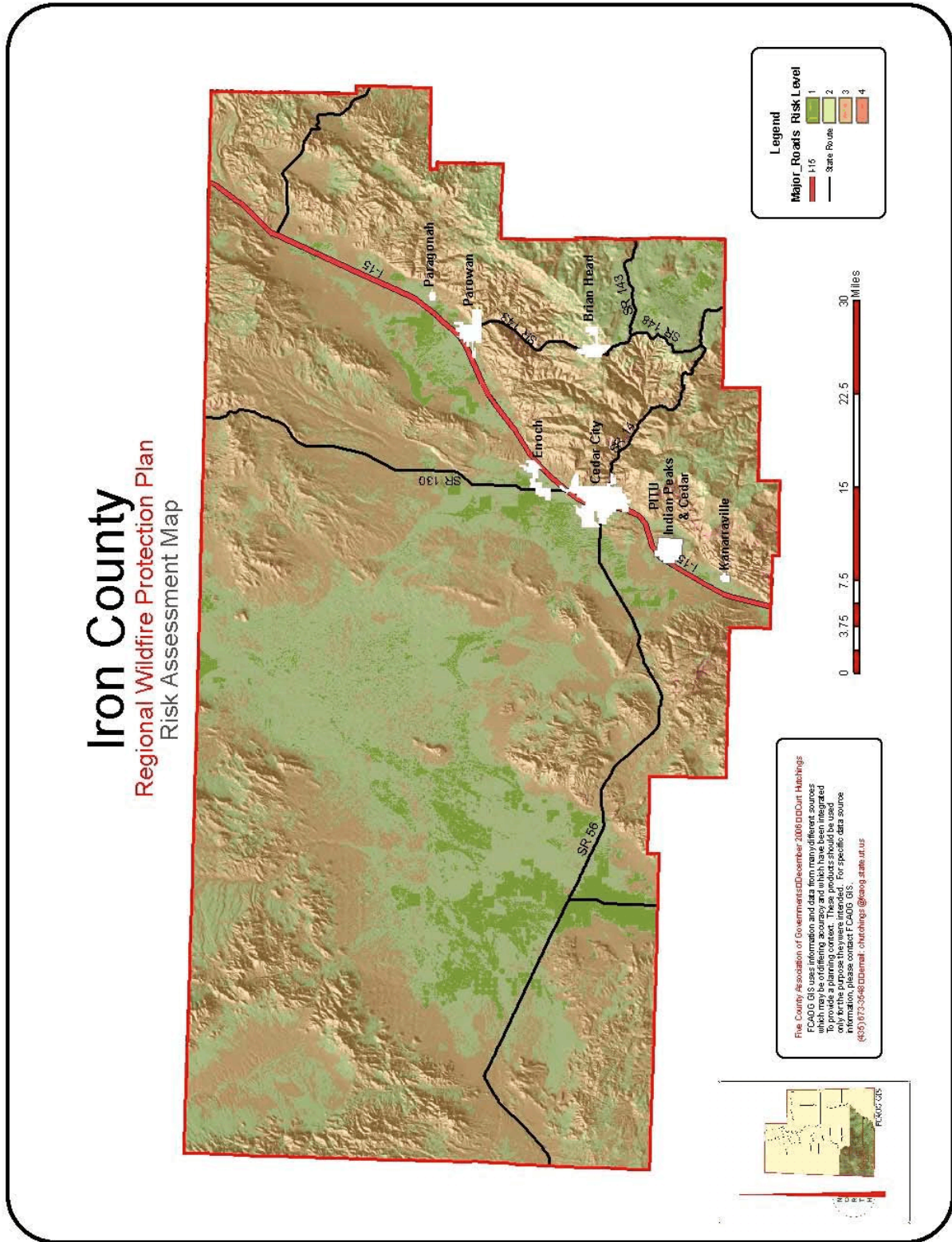
3.7 SOUTHWEST UTAH RISK ASSESSMENT MAPS

The Five County Association of Governments GIS, utilizing available data, developed a risk assessment map for each of the five southwest Utah counties which are presented on the following five pages. These maps identify the relative risk level of wildfire in each county based upon a scale of 1=Low Risk, 2=Moderate Risk, 3=High Risk and 4=Extreme Risk.

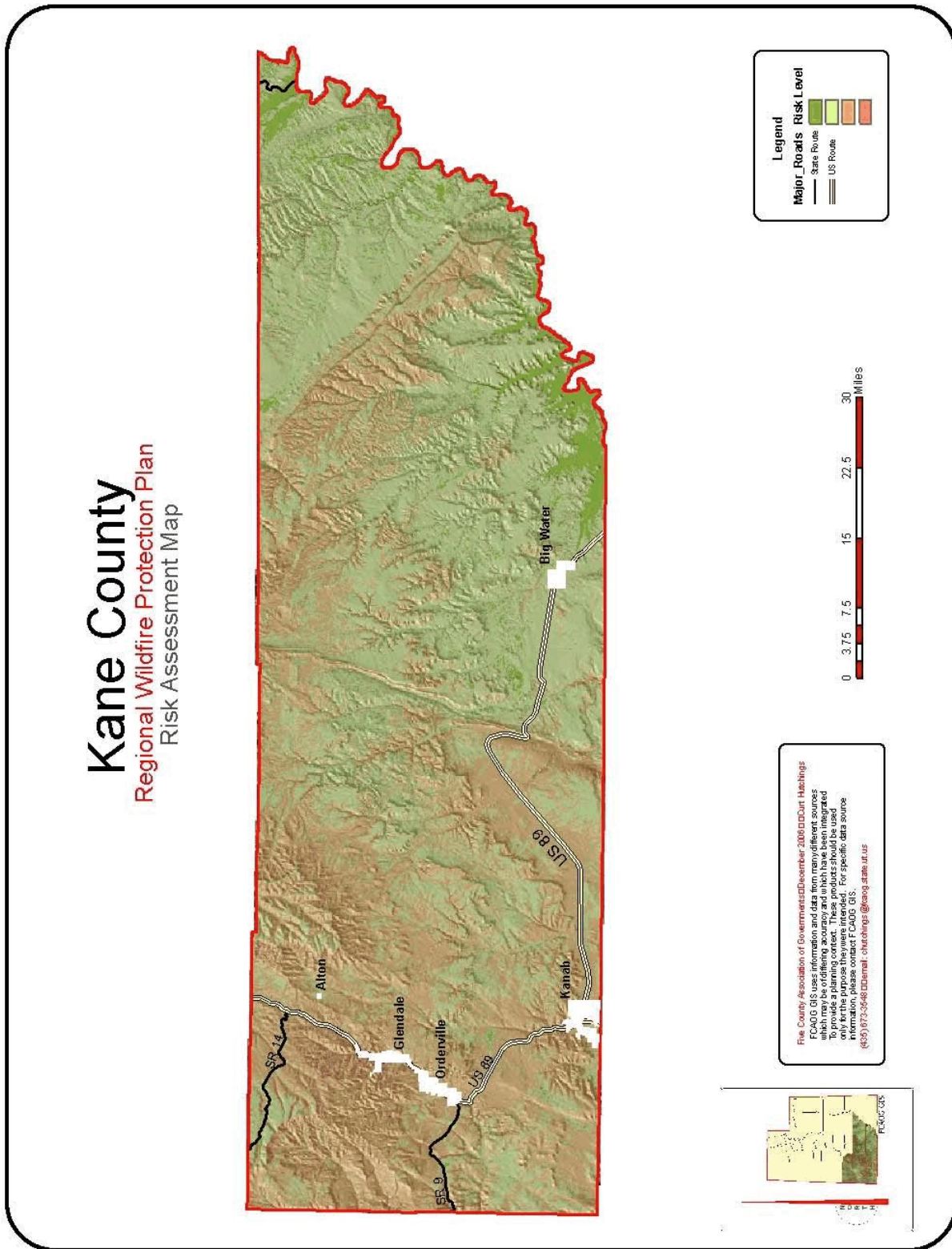
Map 3.1 - Beaver County Risk Assessment Map



Map 3.3 - Iron County Risk Assessment Map



Map 3.4 - Kane County Risk Assessment Map



Map 3.5 - Washington County Risk Assessment Map

